

This lesson is part of a larger, comprehensive school garden guide called **Minnesota School Gardens: A Guide to Gardening and Plant Science** developed by Minnesota Agriculture in the Classroom in 2013. The entire guide is available at www.mda.state.mn.us/maitc.



Grade

High School

Materials/Preparation

- ☐ Teacher Material A – Environmental Factors that Affect Food Availability and Choices – one per teacher
- ☐ Handout A – Experience Chart – one per student
- ☐ Handout B – Personal Food Goal – one per student
- ☐ Assessment A – Choosing Foods – one per student
- ☐ Four to six sets of unripe, ripe, or overripe raw fruits and vegetables*
- ☐ Napkins - one per student
- ☐ Tongs (to put samples on napkins)
- ☐ Blindfolds
- ☐ Writing utensils

**A typical example would be green, yellow, and brown bananas. An unripe cantaloupe or muskmelon is green and hard, a ripe one is tan or yellow, and an overripe one is soft and darker yellow and brown. Peas would be ripe when the pods are filled up with medium-sized peas. They would be unripe if the peas were not developed and overripe when they are large and tough.*

Choosing Foods

Minnesota K-12 Academic Standards

Health	9.2.1	The student will analyze how cultural diversity enriches and challenges health behaviors.
Health	10.6.1	The student will design, evaluate, and implement a plan for attaining a personal health goal.

Summary/Overview

Students learn to distinguish between unripe, ripe, and overripe produce. Next they examine influences on a person's food choices and conclude with a personal plan for trying new foods.

Garden Connection

Picking garden produce at its peak ensures the best-tasting product. Students learn how to distinguish between unripe, ripe, and overripe produce.

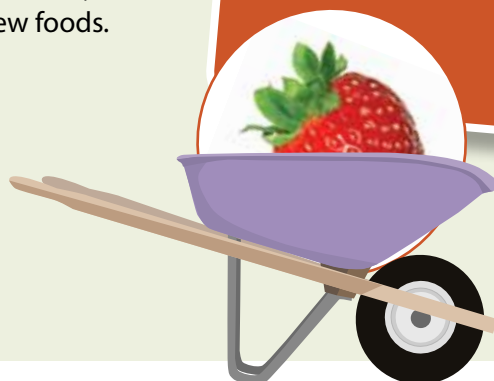
Background Information

Every day we make choices about the foods we eat. Knowing how to select fruits and vegetables at the peak of ripeness allows us to enjoy the tastiest foods. Unripe produce tends to be harder and less sweet. Ripe produce is typically firm with a slight give and is sweet. Overripe produce can be mushy and lack familiar texture. Produce grown far away from its final destination is picked during the unripe stage to allow time for travel. If unripe produce is purchased from the store, often it can be placed in a brown paper bag for a few days. The bag helps the fruit ripen by creating a chamber to hold in natural ripening gas given off by the produce. If produce becomes overripe on our counter at home it can be used in cooked foods. For example, overripe bananas are especially tasty in muffins and breads.

Many things influence the choices we make when selecting our food. We each have personal food preferences and dislikes. Sometimes our food choices are determined by the options provided to us such as in a school cafeteria line. Other times our food choices are influenced by where we live, the time of year, and climate. Whatever influences our food choices, it is important to continue to try new foods.

Fun Fact

Seventy percent of a strawberry's roots are located in the top three inches of soil.



objectives

- Identify fruits and vegetables that are unripe, ripe, and overripe.
- Describe the advantages of knowing how to identify produce that is unripe, ripe and overripe.
- Explain how environmental factors such as location, season, and climate affect food choice.
- Create a plan to incorporate new foods into your diet.

Procedure

Interest Approach

Ask students if they have ever smelled cookies baking in the oven and wished they could eat one at that moment. It sounds good, but if they did eat one, the cookie wouldn't be completely baked. It would be too soft and very hot. That is why we wait to take cookies out of the oven until the timer rings telling us they are done. Many things we eat have to be at the right stage for them to taste their best. Fruits and vegetables are that way. A fruit or vegetable is called ripe when it's ready to eat. We use our senses to tell when fruits and vegetables are ripe.



Summary of Content and Teaching Strategies

Have the class number off one through three and form groups according to their number. The three groups will determine ripeness by look, touch and smell. Have all groups wash their hands thoroughly.

Group 1 looks at each set of fruits or vegetables. They determine which one is unripe, ripe, and overripe in each set, and put the fruits or vegetables on a desk or table in order of ripeness. Put unripe produce on the left, ripe in the middle and overripe on the right.

Group 2: Blindfold this team. Place an assortment of unripe, ripe and overripe fruit or vegetables within arm's reach on the table. Place Group 2's hands on the produce and instruct them to feel the fruits or vegetables and identify them. Then have them feel the fruits or vegetables to determine which are unripe, ripe, and overripe. Have them put the unripe fruit or vegetable on the left, ripe in the middle and overripe on the right. Ask them to explain their choices.

Group 3: Blindfold this team. Use the same technique as with the twos, but instruct the students to smell the fruits and vegetables to see if they can tell the difference. Have them place the produce in order of ripeness from left to right starting with unripe. Once again, ask them to explain their choices.

Thoroughly wash the fruits and vegetables and set up a taste test. Label produce unripe, ripe or overripe. Instruct students to wash their hands again and then taste test the produce. Before eating the produce, students use their senses to observe differences between samples and complete Handout A. Discuss the difference in taste between the unripe, ripe, and overripe produce.

Ask students why is it helpful to know when fruits and vegetables are ripe. Produce is the sweetest and tastes the best when ripe. We need to eat adequate amounts of fruits and vegetables every day to keep our bodies healthy. If we know when fruits and vegetables taste the best, we might eat more of them.

Sweetness and texture can influence the food we choose to eat, but many other things do too. Ask students to brainstorm a list of factors that influence the choices we make with our foods. Be sure students think about how environmental factors such as location, season, and climate affect food choice. Display Teacher Material A and fill in the columns as a class. Ask students to name foods that are dependent

upon location or certain growing conditions. For example, watermelon plants need a sunny location with well-drained soil. Brainstorm a list of foods that grow seasonally in Minnesota such as strawberries in the spring and apples in the fall. Finally, list foods that are grown in other climates and available year round in Minnesota such as bananas. At one time, foods that were out of season or grown in another climate were not available year round. Why? Today, greenhouse growing and quick methods of transportation worldwide make it possible for Minnesota residents to enjoy out-of-season produce all year long.

Ask students to name unique foods they have tried. Have them describe their favorites, noting the ingredients. Challenge students to develop a plan to introduce new foods into their diets. If possible, provide produce from the garden for this purpose. Students have the opportunity to expand their favorite foods. Provide students with copies of Handout B. Read through the directions and complete steps one and two. After a week or so, revisit Handout B and have students complete the final steps.

Review/Summary

Have students create posters explaining the difference between unripe, ripe, and overripe produce. Posters can be hung in the school cafeteria.

Modifications/Extensions

Take a walking field trip to a grocery store produce section to identify fruits, vegetables, and seeds and the characteristics that make them ripe or the best choice. Alternatively, invite a grocery store produce manager or a fruit or vegetable grower to come and talk to your class about their jobs and the fruits and vegetables they sell.

Sources/Credits

Parts of this lesson were adapted from *Growing in the Garden Elementary Curriculum that Grows with the Child* written by the Iowa 4-H Development Program and revised in June 2012. The curriculum can be purchased from the Iowa State Extension Office <http://www.extension.iastate.edu/4h/page/curricula-info-ordering>

Environmental Factors that Affect Food Availability and Choices

Location/Growing Conditions <i>List foods that are dependent on certain locations or growing conditions</i>	Seasonal <i>List foods that grow seasonally in Minnesota</i>	Climate <i>List foods grown in other climates but available year- round in Minnesota</i>

Name _____



Experience Chart

An unripe _____ looks _____.

An unripe _____ feels _____.

An unripe _____ smells _____.

An unripe _____ tastes _____.

A ripe _____ looks _____.

A ripe _____ feels _____.

A ripe _____ smells _____.

A ripe _____ tastes _____.

A _____ that's too ripe looks _____.

A _____ that's too ripe feels _____.

A _____ that's too ripe smells _____.

A _____ that's too ripe tastes _____.

Name _____



Personal Food Goal

After learning about different things that affect food choices, create a plan for introducing new foods into your diet.

Step 1. Set a reasonable goal that encourages you to try new foods.

Step 2. Write a paragraph discussing the motivating and reinforcing factors that may help you accomplish your goal. Who might help you try new foods? Where will you get the foods? Discuss the challenges you may face in accomplishing your goal.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins or other markings on the paper.

Step 3. Evaluate your progress. Have you reached your goal? What do you need to do to reach your goal?

Step 4. Reflect on the new foods you have tried. What did you think of them? Will you continue to eat them? Why or why not?

Name _____

Choosing Foods



- 1.** Describe how to determine if a fruit or vegetable is unripe, ripe, or overripe.

- 2.** List two advantages of knowing how to identify produce that is unripe, ripe and overripe.

- 3.** Explain how environmental factors such as location/growing conditions, season, and climate affect food choices.
